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CURRENT LITERATURE.

BOOK REVIEWS.

Agricultural botany.[1]

THOSE practically interested in the cultivation of plants have felt the need of a text-book of botany adapted to their wants. They are interested in the science of botany only in so far as it applies to their operations, and the great mass of material in current text-books is of little value to them. It is noticeable, also, that as the science advances the authoritative text-books deal more and more with recondite matters, and are growing away from the needs of the practical cultivator. The appearance of a text-book definitely designed to meet the needs of this class, therefore, is very timely, especially when it is so excellent as the one written by Professor Percival. The author has had many years of experience in teaching and lecturing to students, practical farmers, and gardeners, and is in a position to select his material wisely. What is equally to the point, he is evidently in touch with what is best in the science of botany; and while captious criticism might point out omissions which destroy the philosophical perspective of the science, and deny to the reader any adequate conception of the plant kingdom as a whole, one cannot help but feel that this is an ideal demand which the constituency addressed have no time or inclination to realize. The author's style is that of a good teacher, the presentation being clear and logical.

This book is divided into eight parts. The first deals with the gross structures of seed plants, the topics being seeds, the root, the vegetative shoot, the leaf, the flower, the inflorescence, and the fruit. The account is clear and simple, and the terminology is not excessive, as is too often the case. The emphasis, of course, is laid upon the plants and structures most commonly met in cultivation. One of the excellent features of the book is the constant insistence upon practical demonstration and experiment, and these are suggested at every step. The second part deals with histology, and includes a brief but adequate and up-to-date presentation of the cell, cell division, tissues, and the anatomy of root, stem, and leaf.

The third part is devoted to plant physiology, and it is a pleasure to meet in such a book a good presentation of the formal aspects of the subject. Perhaps they are too formal, but the experiments are numerous and usually good, and well adapted to the constituency. The only criticism which seems worth mentioning is that little idea is given of the plant as an irritable organism, irritability being scarcely alluded to except in connection with movements. The subjects treated are the chemical composition of plants, osmosis, absorption of water, transpiration, absorption of food materials, photosynthesis, formation of proteids, translocation and storage of foods, enzymes, respiration, growth, reproduction, cultivated plants and their origin, and plant breeding. Under the head of sexual reproduction of seed plants the author in the main steers clear of the usual misleading terminology, but evidently finds it impossible to make clear the real situation without more training than the book demands.

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[1] PERCIVAL, JOHN: Agricultural Botany, theoretical and practical. 8vo. pp. xiii + 798, illustrated. New York: Henry Holt & Co. 1900. $2.50.

The fourth part has to do with the "classification and special botany of farm crops." After a general discussion of the classification of plants, in which the emphasis is naturally laid upon seed plants, the author selects for special presentation the following families: Cannabaceae, Chenopodiaceae, Cruciferae, Rosaceae, Leguminosae, Umbelliferae, Solanaceae, Compositae, and Gramineae, with special chapters on cultivated and wild oats, cultivated barleys, rye, wheats, grasses, and clovers. The fifth part discusses the weeds of the farm. A general discussion of the injurious effects of weeds, their duration, their habit of growth, how they spread, and their extermination, is followed by an account of special weeds.

The sixth part presents the subject of farm seeds, the purity, germination capacity, germination energy, weight, form, color, etc., of seeds being discussed. The seventh part considers fungi chiefly in relation to some common diseases of plants. After a presentation of the structure and habits of fungi in general, the different diseases which they produce in farm crops are discussed. The last part is devoted to a consideration of bacteria. The morphology and reproduction of bacteria are first presented, and afterwards their work in lactic, butyric, and acetic fermentations, and in putrefaction, nitrification, denitrification, fixation of free nitrogen, and diseases of animals.

It will be observed that the scope of the book is broad, and that it includes the subjects of special interest to cultivators of plants. It certainly deserves to be received eagerly by agricultural schools and those engaged in agricultural pursuits.— J. M. C.

A botanical dictionary.

THE making of a good dictionary, even though limited to the special vocabulary of a single science, is not the easy task a novice might imagine. It is fortunate, therefore, that the task was undertaken by so competent a person as Mr. B. Daydon Jackson, who, if we may judge by his works, delights in painstaking labor of a kind that is intolerable drudgery to most men. He fully realizes the difficulties of the present task and the meager appreciation it is likely to receive, for he aptly quotes Dr. Johnson: "Every other author may aspire to praise, the lexicographer can only hope to escape reproach."